

InLCA: Eco-Labeling and Purchasing

The Ecolabel and Sustainable Development

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Abstract

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Abstract. The goal of the different national and supranational ecolabelling programs is to encourage consumers to choose products which are the least damaging to the environment. It is clear that the involvement of product and service users is essential to the establishment of sustainable consumption patterns. For this reason, ecolabelling must necessarily limit any risks of uncertainty. To this end, labels must take into account all the impacts of a product's life cycle and use a reliable and verifiable evaluation method.

In general, the organizations in charge of ecolabelling programs claim that a multi-criteria approach is used to define the exact labelling criteria appropriate for the product categories in question. These organizations generally maintain that their approach is based on the completion of exhaustive and complete life cycle analyses, which take into account all of the impacts caused by a product throughout its life cycle. And yet, the real situation is often far less clear-cut, and these simplified approaches, which tend to reconcile economic realism and methodological coherence, constitute the usual procedure for criteria definition.

Thus, the procedures involved in criteria development often rely on a 'semi-qualitative' approach to the life cycle which uses both qualitative and quantitative data in order to identify the product's significant stages on the environment.

Presently, the ecolabel is a 'non-verifiable expert property' for the consumer. The ecolabel's lack of objectivity in its criteria and its lack of transparency, resulting from non standardized methods whose accuracy cannot be measured, can only damage this sustainable development tool's credibility. In effect, the primary hindrance to ecolabel development lies precisely within this difficulty of finding a compromise between economic feasibility and the scientific and methodological rigor which are indispensable to the label's credibility and veracity.

Keywords: Ecolabel; environmental declarations; environmental labels

manufacturing procedures as well as in consumption patterns¹. Today, the environmental awareness of the public is increasing and this trend may lend an advantage to businesses who wish to go off the beaten track and focus on conquering the new 'green product' market.

Environmental labels and declarations are at the crossroads of environment concerns and commerce. Voluntary ecological labelling is the result of a business approach which aims to take advantage of market forces to influence the informed consumer [1] and to carve out a prime position in a potentially profitable market niche. Voluntary ecolabelling also serves as a means of regulation through consumer information, and thus is part of the third wave of sustainable development tools [2]. This new wave involves new means and methods. Such means include the use of model businesses, or, on the other hand, lists of businesses or sites that fail to respect mandatory environmental standards [3].

In fact, ecolabelling is attracting more and more interest on the part of large companies who see this type of labelling as an essential factor to consider as part of their industrial and commercial strategies. This interest takes on an even greater impact in the current context of the globalization of markets because product certification may well become "... both a very effective means for protecting internal markets and an increasingly essential tool for gaining outside markets [4]."

Where ecological labelling is concerned, certification and private standardization go hand in hand. Standardization may be defined as being one of the market economy's new forms of regulation which aims to impose, by means of market forces, voluntary technical specifications in order to harmonize standards related to the international production and exchange of goods and services. Recently, standardization has been the subject of many analyses, both in the fields of law [5] and of political economy [6] concerning the

Introduction

Since the Rio Summit in 1992, there has been an international consensus on the need to promote sustainable development and thus allow the integration of environmental issues into

¹ Among the principles which are set out in the Rio Declaration, principle 8 states that "in order to achieve sustainable development and a better quality of life for all nations, states must reduce or eliminate non viable production and consumption methods". As well, chapter 4 of Agenda 21 states that progress can be made in this field by reinforcing trends and positive movements within the framework of a process whose goal is to considerably modify the consumption modes of industrial enterprises, governments, households and individuals, so as to utilize resources in the most rational manner possible and to reduce waste to a minimum.

new forms of non-state authority in the normative arena at both the internal and international levels. Jean-Christophe Graz explains that this analysis, "far from creating an opposition between the law and public regulation and private standardization ... sets out to explore how international standardization represents a new model of 'entrepreneurial democracy', whose fault lines run through the opposition between the State and the market while providing several levels of a hybrid form of authority at the world level [7]". The standards of the International Organization for Standardization (ISO) certainly represent one of the most fully developed examples of this movement. The ISO 9000 standards on quality production control as well as the ISO 14000 standards on the management of environmental quality have had an indisputable success worldwide, and are based on this idea of entrepreneurial democracy.

In 1998 and 1999, ISO standardized ecolabelling practices and adopted the 14020 series of standards which puts forward a separate standard for each of the environmental labels. Environmental labels and declarations have a vital role to play in the promotion of sustainable development. These labels are the most direct link between products and consumers. The general objective of environmental labels and declarations, according to ISO 14020, is: "Through communication of verifiable and accurate information that is not misleading, on environmental aspects of products and services, to encourage the demand for and supply of those products and services that cause less stress on the environment, thereby stimulating the potential for market-driven environmental improvement." In order to meet the objective of environmental labels and declarations, two conditions are essential, in our opinion; (1) that the consumer can distinguish products having the least impact, and (2) that the products bearing the label be less harmful for the environment (which is not always the case presently).

Our paper will present the three types of ecological labels according to ISO's 14020 series of standards and stress the differences between each type. We will also examine the process for establishing ecological criteria for each type of label while raising questions as to how adequate these criteria are.

1 Ecological Labelling Practices: An Overview

1.1 Type I Environmental Labeling

The first category is Type I environmental labelling. The specific goal of Type I labelling is to identify overall environmental performance of a product or service within a particular product/service category based on life cycle considerations. Many countries, including Australia, Canada, Japan, New Zealand, the United States, Italy, Austria, Germany, Sweden, Norway, Finland, Iceland, the Netherlands, the United Kingdom, France and Denmark have labeling programs. Despite the degree of diversity among existing ecolabelling programs, it is possible to identify certain common factors.

For instance, Type 1 environmental label, standardized by ISO 14024 [8], involves a repeated process which includes consultation with stakeholders for the selection of product categories, the establishment, revision and modification of

environmental criteria for the product, the establishment of certification methods and other administrative aspects of the program [9].

Generally speaking, all Type 1 labels involve two steps. The first step is standardization. In this phase, the consulting committee of the ecolabel program defines the minimal requirements needed to obtain the ecolabel, in other words, the establishment of certification criteria. The second phase – certification – allows companies to use the ecolabel on products or services that fulfill the label's criteria.

1.2 The standardization/weighting phase

In the first phase, standardization, the process of defining ecological criteria is the result of a decision made by the labelling organization, after consultation with a consultative committee made up of representatives from various interest groups, such as consumer protection associations, or environmental protection associations. Government representatives and state organizations also sit on these committees.

These consultative committees generally have decision-making authority when criteria are established and a consultative role once the criteria have been set. ISO standard 14024 sets out that this consultation is an important step because it allows the participation of all interested parties in the choice of a product category, the establishment of environmental criteria and the functional characteristics of the product [10]. The guidelines of the Society of Environmental Toxicology and Chemistry (SETAC) also strongly endorse the involvement of such committees.

Thus, the criteria underlying the ecolabel are determined by product category. Each of these categories includes products whose functions, technical safety, and fitness for use are similar [11]. ISO standard 14024 uses the terms 'product function characteristic' and 'fitness for purpose' to describe this requirement.

In the selection of categories for products, a study of potential categories and market type should be made. In this regard, ISO standard 14024 recommends that the feasibility study for the identification of product categories includes specific steps from the initial selection of possible categories, through analyzing the availability of environmental data, a market study phase, the identification of product suppliers on the market (large, medium and small businesses, as well as national and foreign producers) and the evaluation of the environmental impacts of the products [12].

In most programs, the ecolabel is open to all product categories, with the exception of food, beverages, and pharmaceutical products. (In the Netherlands, ecolabelling can also be applied to processed foods) [13].

Since the goal of establishing ecolabelling programs is to give the consumer the possibility to choose the products which are least harmful to the environment, it is also essential that these programs avoid confusion or ambiguity. This can only be prevented if the labels are a result of criteria taking into account the impacts that the product may cause

throughout its entire life cycle. Only the performing of a life cycle assessment of products will make it possible to reach this goal. As well, ISO standard 14024 stipulates that the environmental criteria of the product must be based on indicators derived from a consideration of the life cycle. In this respect, the standard requires life cycle assessment as a scientific method on which to base the labeling criteria and the approach that must be followed is explained in these terms: The life cycle phases to be considered when establishing product environmental criteria should include resource extraction, as well as manufacturing, distribution, utilization and disposal as these relate to pertinent indicators in all environmental compartments. Any deviation from this overall approach or any selective use of particular environmental points must be justified [14]. For example, a product where the impact of the use phase is 90% of the life cycle impact could thus be evaluated on its energy consumption.

In general, the bodies in charge of managing each of the ecolabel programs claim that their approach is based on the use of exhaustive life cycle assessments which take into account the ecological impacts generated throughout a product's entire life cycle before deciding which steps are the most significant for the determination and weighting of certification criteria. In practice, the true situation shows much variation. In fact, the criteria development procedures often fall back on a 'semi-qualitative' [15] approach to the life cycle analysis and consider only one or several significant phases for the product in terms of environmental performance as compared to similar products offered on the market. For instance, in Germany, where more than 150 product categories currently exist, a particular weight is given to product characteristics that are specifically relevant to an evaluation of its environmental impacts, but other impacts associated with raw material extraction or production phases are omitted. The argument given to justify this omission of fundamental phases in a product's life cycle is that administrative and legislative measures already exist to reduce or avoid environmental damages at these stages of product manufacturing. In reality, the product categories chosen are those for which environmental damage is linked to the final product [16].

As for the information provided by Terra Choice, the private environmental services company which manages the Canadian Environmental Choice Program, the company states that an exhaustive life cycle assessment is used to develop criteria before granting a company the license to use the eco-logo. However, consulting the list of criteria established for various product categories raises certain doubts about this statement. It seems that the criteria may in certain cases be established without any product life cycle assessment, as indicated in the following passages taken from the Terra Choice internet site:

"To obtain the eco-logo, a product or service must be manufactured or offered in such a way as to improve energy efficiency; to reduce dangerous by-products; to make use of recycled materials; to be reusable or to offer another environmental advantage."

In fact, within Canada, the Terra Choice Company has developed criteria for approximately 130 product categories. The criteria for 55 of these categories were set on Terra Choice's initiative, with the assistance of its consultative committee. On the other hand, criteria for the remaining 85 categories were determined pursuant to a producer's application, and Terra Choice left the producer with the responsibility of showing in which ways his product was more efficient than other similar products. Terra Choice issues the eco-logo to a product which, at some phase of its life cycle, is 20% more efficient than other products in the same category, without considering the impacts occurring during other life cycle phases².

The problem with this approach, which is also adopted by other programs, is that it is neither transparent nor free from subjectivity and it does not respect the recommendations of ISO standard 14024 which states that for selection purposes, environmental criteria must be established to differentiate products which are preferable from an environmental standpoint to other products and product categories. This selection process must be carried out while, at the same time, taking into account the life cycle assessment of the products based on the approach put forward in Table I of ISO Standard 14024. This table is designed to assist the ecolabel delivering bodies in selecting environmental criteria for products. The table sets up a correspondence between the life cycle phases of a product and the main environmental indicators, at the input and at the output level. Indicators for label delivery are organized into compartments, and each compartment generally includes several indicators. On this point, ISO 14024 states that it is important to consider the following factors:

The study of life cycle phases might lead to the conclusion that at certain steps the environmental impact is not significant and does not require further study. However, the study should show that the choice of environmental criteria for a product does not lead to an impact transfer from one life cycle phase to another or from one compartment to another without clear environmental benefit [17].

To be in line with this Standard's instructions, and to be able to justify the consideration of environmental impacts at certain phases rather than at others, it is necessary to carry out life cycle assessments for products within the same product category. However, contrary to the stated intent, and to the recommendations in ISO Standard 14024, several ecolabelling programs do not consider the environmental impacts of the entire product life cycle before deciding on the appropriate criteria [18].

² Based on the contents of an interview with Terra Choice which took place in April 2003. In the course of the conversation, an example was given of a pencil manufactured with 20% recycled materials as opposed to a pencil which is entirely made from non-recycled materials. This example was given to demonstrate Terra Choice's selectivity when delivering an Eco-logo for a product which is 20 per cent more efficient than its competitors. So, the assessment of the rest of the life cycle of the product is not taken into consideration when an ecolabel is issued under the Canadian Environmental Choice Program.

1.3 The certification/homologation phase

Once the labelling criteria have been defined, the certification phase involves informing the consumer through authorization of ecolabel use³. An annual license fee is levied according to a percentage of the company's annual sales of the labeled product.

The ISO 14024 standard states that the ecolabel delivering body must require that the applicant provide documented proof of compliance with the program's requirements, before issuing the license giving the right to use the ecolabel. The standard also requires that the applicants promise to respect environmental legislation as well as all other related legislation [19]. This leaves us with many unanswered questions because we fail to see in what way or with what judicial authority the ecolabel delivering bodies will be able to verify this compliance, which varies not only from one activity to another, but also evolves over time. Does this mean that as soon as a company has problems with the administration or the courts, and as soon as the ecolabel delivering body becomes aware of this situation, it will revoke this company's authorization? This seems highly unlikely.

Thereafter, as soon as the ecolabel user license has been granted, its holder must inform the body which delivered the license of any product change which might mean that the product no longer meets the requirements. The ecolabel delivery body must then ask the company to take the required corrective measures; otherwise, the company might see its license taken away [20].

2 Summary of Ecolabels

Alain Nadai, from École des Mines de Paris, describes the ecolabel as a 'non verifiable expert property' for the consumer, and explains that the main obstacle to ecolabel development lies in the difficulty in finding a compromise between the economic feasibility and the scientific rigor which are essential to the credibility and veracity of the label.

"The ecolabelling criteria are the result of an environmental appraisal made of a product, and the consumer is unable to evaluate the accuracy of this appraisal; for the consumer, uncertainty remains as to the environmental quality. The agents who are responsible for establishing the environmental diagnosis of the product are thus able to manipulate the diagnosis, if they so wished, to increase their profits in the market place. This leeway accounts for the difficulties encountered in negotiating criteria, and, consequently, in the development of ecolabels [21]". From our analysis of the two phases included in the ecological labeling process, we can readily conclude that the 'cradle-to-grave' analysis for

ecolabeled products and services is not always, in fact, respected, and that at the present time ecolabel delivery criteria are not sufficiently stringent. From one program to another, the determination and weighting of criteria are based on different methodology and on practices which do not appear to be sufficiently transparent, despite the presence of consultative committees. The manner in which ecolabelling criteria are defined in some programs reflects "the prominence of competitive logic over ecological logic [22]". Fortunately, the evolution of ecolabelling programs around the world tends to address the issues of criteria setting and methodological transparency.

In North America, ecolabelling programs rely on the private sector. This fact definitely has an impact on the selection of products, ecolabelling criteria and the methodology used. Our research allows us to conclude that granting ecolabels to businesses who pay the costs reveals a logic that is more commercial than ecological in nature [23]. This situation is reflected in the phase in which environmental criteria are set by product category and at the certification stage of the products.

Many ecolabels are presently granted by private organizations following a request made on its own initiative by a private company. This ecolabel delivery body is often recognized by the State and maintains a more or less close relationship with the State. In most cases the programs were created by state organizations and subsequently entrusted to private companies – as in the Netherlands and Canada – or to private standardization bodies such as RAL in Germany and AFNOR in France. In certain programs, the State has retained ownership of the seal. It is the case in Germany and Canada. Certain labels, such as the 'Green Seal' in the United States, have however never been linked to a government organization.

3 Self-Declared Environmental Claims (Type II Environmental Labeling)

ISO Standard 14021 describes the self-declared environmental claim as an "environmental declaration made without certification from an independent third party, on the part of manufacturers, importers, distributors, retailers or any other entity able to gain benefit from this declaration [24]". This standard establishes that the goal of voluntary ecological labeling is to make environmental claims in voluntary labeling more precise, to promote environmental improvements, to reduce inaccurate claims, to decrease confusion, to facilitate international trade and to allow the consumer to make well informed choices.

Section 5.7 of this standard sets out the 'particular requirements' that parties using this label must respect, and the first requirement is that the label "must be accurate, and must not be misleading" for the consumer. As well, the label "must be true not only for the finished product, but it must also take into account all of the significant aspects of the product's life cycle so as to identify the potential increase in one impact pursuant to the decrease in another."

Self-declared environmental claims must also comply with national legislative and regulatory standards requiring that

³ For instance, the annual fees that Terra Choice collects from companies is set at 0.6% on the first million dollars of annual sales for the licensed product. To this amount is added a percentage of approximately 0.1% of further sales, for a total minimum amount of \$1,000 and a total maximum amount of \$100,000 per product. The license cost, which is based on annual sales, aims to allow both small and medium businesses as well as large companies to obtain the Eco-logo. This complies with ISO standard 14024, section 5.6, which states that "Royalty fees should be equitably distributed among applicants and recipients".

labels be accurate, such as in Article 7 of the Consumer Packaging and Labeling Act [25] in Canada. Article 7 states that "no supplier may place a label on a product which contains false or misleading information about this product or any label that could reasonably give this impression or import, sell or advertise a product labelled in this manner". In the United States, Article 5 of the Federal Trade Commission Act [26] prohibits any person or company from using unfair advertising methods affecting trade. This article is completed by guidelines that lay out how Article 5 is to be applied to green marketing practices. Presently, a complaint lodged under the legislative measures prohibiting unfair competition is the only means available to curb or control self-declared environmental claims. However, in practice, it is very difficult for a consumer to verify the accuracy of a manufacturer's claim because the ecological label is a 'bona fide good' which cannot be verified without expensive, time-consuming tests that the average consumer cannot afford.

The most frequently used terms in this type of declarations are: compostable, degradable, designed for disassembly, extended life product, recovery energy, recyclable and recycled content. These declarations are, at least in Canada, extensively used on the market. They are in fact the most significant environmental message that reaches the consumers. Unfortunately, almost all of these declarations are related to a specific life cycle phase and do not take into account the global impacts of the labeled product. For example, a product made of recycled material could have more impact on the environment than another one made of virgin material due to the energy used to collect, clean and process the material in question. In such a case, the product bearing the logo 'made of recycled material' would be worst for the environment. It could also be the case for products using significant amount of energy at the use phase and bearing declarations such as 'extended life' or 'designed for disassembly.' In such cases, the most significant life cycle phase could be ignored and the product could still bear an environmental label. Since we know that life cycle considerations, without being perfect, should be used to give a more reliable picture of environmental impacts related to products, we question why mono-criteria and non verified declarations are still the most widely used type of environmental labelling.

The multiplicity of self-declared environmental claims on the market can only hurt the development of life cycle based ecolabels. Thus, one of the means to be considered that would allow the full development of ecolabels would be to prohibit, through regulation, self-declared environmental claims. This measure would have the effect of protecting consumers and create a higher degree of credibility for those ecolabelling programs that are truly based on product life cycle assessment. This question should receive further study, however, especially from the perspective that such a ban could constitute a limit to commercial free speech, a liberty which has a constitutional value in Canada, according to the Charter of Rights and Freedoms.

4 Type III Environmental Declarations

This third label category (ISO/TR 14025) is characterized by its evaluation methodology. Type III product declarations

must be based on procedures and results from a quantified life cycle assessment compliant with ISO 14040 standards. These declarations may provide environmental information such as the content percentage of recycled materials, information on toxic substances, and other information on a product's environmental impacts, on a simplified performance report card, but without comparing the product to other similar products [27]. Type III declarations do not usually contain comparative claims, but the information contained in the declaration may be used to compare products. In this case, the requirements for 'comparative claims' in ISO Standard 14040 must be followed.

The declaration could provide information on specific product characteristics such as the energy requirements profile of a household appliance measured in energy input based on annual use. The establishment of labeling criteria is not the result of a uniform methodology which would make it possible to organize criteria in groups, and communicate these through an overall weighting system. This type of labeling is similar to nutritional labeling where the label "does not say that the product is superior to another, but gives the ingredient list and the product's nutritional information ... [28]."

From the consumer's standpoint, the fact that this declaration is not comparative makes it difficult or impossible to identify the product with the lowest environmental impact. The use of a life cycle assessment ensures a high level of assessment quality but this is only comprehensible to experts.

For many businesses, particularly small and medium size businesses, the complete life cycle assessment is too expensive, and would require a significant time investment.

The ecolabel's advantage, when compared to a Type III label, is that the consumer is able to identify the most ecologically sound product because the presence of an ecolabel provides this certification. A Type III label may be found on several products within a single category and so does not enable the consumer to make this assessment as easily.

5 Conclusion

The ecolabel could become one of the mainstays of public policy on sustainable development. We are convinced that environmental labeling has a very important role to play as a catalyst in sustainable development. Since the objective of the implementation of various ecolabelling programs is to encourage the consumer to favor products which are the least damaging to the environment, it is therefore necessary for these programs to minimize any possibility of uncertainty or confusion.

We are of the opinion that several solutions may be considered in order to make ecolabel programs more credible and transparent. Above all would be the tightening of state controls: the creation through law of a government agency, in short, of an administrative organization, which would manage the program and its evolution. Research and development around life cycle assessment and the establishment of data banks necessary for LCA achievement are also essential fields to promote and develop. A state program could provide the expertise necessary for the government, which increasingly tends to modify its purchasing policies through the

introduction of ecological criteria. The greatest disadvantage is the following: at the outset, this approach would be costly for the state, but this expenditure would be a long-term investment and profitable. In fact, it seems that the costs incurred in repairing environmental problems are increasingly high, and that, for the sustainable development of our societies, the governments should ensure pollution prevention by promoting new means of production and consumption.

Nevertheless, it is imperative that an increased use of this tool on the part of small and medium businesses and developing countries include a democratization of the LCA, through the validation of simplified approaches and the creation of accessible data banks covering all industrial sectors. In Canada, the challenge lies more specifically in the development of its own method for impact analysis which will by-pass the bias linked to the European methods, such as EDIP and the Eco-Indicator 99.

In effect, the ecolabel may remain voluntary but be administered by a state organization, without creating technical obstacles to trade, especially in reference to the OTC Agreement of the OMC. With this approach, the ecolabel program may be one of the components of public policy in the field of sustainable development, and place increased emphasis on the ecological objective and not only on the ecolabel's commercial aims.

"Tomorrow, the success and failure of businesses will depend, in part, on their capacity to have been wise enough to submit their products to certification tests [29]", as Pontier already predicts. In order for the environmental certification of products and the delivery of an ecolabel to become significant competitive advantages, ecolabel programs must be credible and transparent, and the methods must be harmonized.

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